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EXAMINER
STOCK JR, GORDON J

ART UNIT	PAPER NUMBER
2877	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/607,827	Applicant(s) SCHWARZ ET AL.	
	Examiner Gordon J Stock	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The specification is objected to for the following: on line 4 of page 28, "3b" should read –2b--; on line 5 of page 28, "12b" should read –10b—; and on line 13 of page 28, "3c" should --2c—respectively. Appropriate corrections are required.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

3. The drawings and specification are objected to as failing to comply with 37 CFR 1.84(p)(5) because the drawings include the following reference sign(s) not mentioned in the description: **54** of Fig. 7. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1, 6, 7, and 31** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for **claims 1 and 31**, the phrase, "is greater than one-hundredth of the maximum intensity," renders the claim indefinite, for it is unclear as to the meaning of the phrase because it

is unclear as to what it refers. It is unclear to what situation it is referring: the emission intensity at the wavelength range the diode emits being greater than one-hundredth of the maximum possible spectral intensity that the diode is capable of emitting for that particular wavelength range due to maximum power consumption by the diode or peak operating efficiency of the diode; or the emission intensity the diode produces is greater than one-hundredth of the maximum spectral intensity the diode emits simultaneously with the intensity that is greater than one-hundredth of the maximum.

Regarding **claims 6-7**, the phrases "standard light type groups," "C light type standard," "D65 light type standard," "A light type standard," of claim 6 and "a light type standard" of claim 7 renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "type"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1-5, 8, 11-17, 22, 28, 31, 34, 35, and 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and further in view of **Alsenz (4,578,959)**.

As to **claim 1**, Jung discloses an apparatus for measuring optical characteristics of teeth comprising: a first optical means which is a source fiber optic, having at least one illuminating

means, the light of which is directed at a predetermined angle to the surface, a second optical means which is a receiver fiber optic aligned at a predetermined angle to surface and which receives the light reflected from surface, whereby said second optical means comprises at least one photosensor, which emits an electrical measurement signal; a control and evaluation means provided for controlling the measurement sequence and for evaluating of the measurement results and which has at least one processor device and at least one memory means; an output display means; whereby a filter means is arranged in the path of radiation between said light source and said photosensors as to change the spectral characteristic of the incident light in such a way in accordance with filter properties that the spectral characteristic essentially approaches that of a predetermined spectral distribution; and whereby control and evaluation means evaluates said reflected light and derives at least one parameter of the surface (Figs. 1, 2, and 9; col. 3, lines 50-67; cols.7-12; cols. 17-19).

As for the light emitted from said illuminating means providing at least red, green, and blue spectral components and having wavelength range between 480 and 620 nm, Jung teaches tristimulus color measurements using white light (col. 2, lines 13-30); the invention may include broad band elements (col. 4, lines 5-11); the source is a halogen source that emits visible radiation (col. 8 lines 20-25). It is well known that white light comprises red, green, and blue spectral components and that the visible region is between 480 and 620 nm. Therefore, it would be obvious to one skilled in the art at the time the invention was made that the halogen light comprises the spectral characteristics of red, blue, and green, and the range of 480 and 620 nm for white light comprises red, blue, and green light and the wavelength regions of the visible 480 to 620 nm.

Jung discloses the illuminating means as a halogen source (col. 8, lines 20-25) and mentions the use of a red led for visual indication of a UV light (col. 14, lines 15-20). However, the primary illumination for measuring optical characteristics is the halogen source, but other light sources may be used (col. 3, lines 50-60). McNeil in a broadband optical system for the analysis of samples demonstrates that a diode and incandescent sources are functional equivalents of a halogen lamp. Therefore, because the diode and halogen lamp were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a diode for a halogen lamp.

As for the wavelength-dependent intensities, Jung is silent. However, Alsenz in a detection apparatus teaches that broadband sources have wavelength dependent intensities through Planck's equation (cols. 1-2). Therefore, it would be obvious to one skilled in the art at the time the invention was made that the broadband source had a wavelength dependent intensity, for intensity has a wavelength dependence from Planck's equation.

As for the spectral intensity being greater than one-hundredth of the maximum spectral intensity. Jung is silent. This range one percent to one hundred percent of maximum spectral intensity is an optimal range of emission. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the diode emit within one percent and one hundred percent of its maximum spectral intensity, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. In addition, it is well known in the art to pulse a diode at sufficient intensity in order to prevent burn out of the emitting diode. This implies that if a constant voltage is applied that it would be lower than the voltage for

maximum intensity emission in order for the diode to not burnout. Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the intensity of the diode be greater than one-hundredth of the maximum spectral intensity through pulsing in order to obtain a higher amplitude pulse than the diode could sustain at a continuous voltage input level and to increase the lifetime of the diode.

As to **claim 2**, see **claim 1** above. In addition, Jung discloses the parameter is gloss (col. 3, lines 60-65).

As to **claim 3**, see **claim 1** above. In addition, Jung discloses two or more characteristic parameters (col. 3, lines 60-65).

As to **claim 4**, see **claim 1** above. In addition, Jung discloses the parameter is selected among gloss and color (col. 3, lines 60-65).

As to **claim 5**, see **claim 1** above. In addition, Jung discloses a representative measurement of an intensity of the texture of the surface if rough or smooth (col. 10, lines 45-67).

As to **claim 8**, see **claim 1** above. In addition, Jung discloses filter means comprising at least one or several filters having predetermined spectral properties (Fig. 3, Fig. 9).

As to **claim 11**, see **claim 1** above. In addition, Jung discloses evaluation means evaluates measurement signal using a program stored (col. 11, lines 30-40).

As to **claim 12**, see **claim 1** above. In addition, Jung discloses the second optical means comprises a plurality of photosensors arranged adjacent to one another (Fig. 3, Fig. 9).

As to **claims 13 and 34**, see **claim 1** above. In addition, Jung discloses the light of first optical means exhibits an elliptical pattern of at least one light edge (col. 16, lines 5-15) and that

a color gradient filter comprising a series of parallel light and dark edges may be used (Fig. 11; col. 24, lines 5-30).

As to **claims 14 and 35**, see **claim 1** above. Jung discloses that a color gradient filter comprising a series of parallel light and dark edges may be used (Fig. 11; col. 24, lines 5-30). Grid form may also be used (Fig. 12; col. 24, lines 35-50).

As to **claim 15**, see **claim 12** above. In addition, Jung discloses that a color gradient filter may be used (Fig. 11; col. 24, lines 5-30). Therefore, a gradient of signals will be derived. It would be obvious to one skilled in the art at the time the invention was made that the evaluation means will derive at least one gradient of the measurement signal form the difference between the measurement signal of a photodiode and a neighboring photodiode, for the color gradient filter produces a signal gradient of the light to the linear array of sensors.

As to **claim 16**, see **claim 1** above. In addition, Jung discloses that a color gradient filter may be used (Fig. 11; col. 24, lines 5-30). And that averaging occurs (col. 8, lines 60-65).

As to **claim 17**, see **claim 1** above. In addition, Jung discloses an intra-oral camera (Fig. 24). Examiner takes Official Notice of at least one light source is well known in the art as a component of an intra-oral camera. It would be obvious to one skilled in the art to have the intra-oral camera comprise at least one light source in order to provide illumination. Jung discloses the light source, third optical means, of the intra-oral camera may be the same as of the reflectometer (Fig. 34). Therefore, the light sources for both systems are functionally equivalent. Because the light source of the reflectometer system and the intra-oral camera system were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would

have found it obvious that the light source of the intra-oral camera has the same predetermined spectral characteristic as the reflectometer's light source.

As for the predetermined angle for imaging, this would be an optimized value. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to the camera at a predetermined angle for imaging, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)*

As for **claims 22 and 37**, see **claim 1** above. In addition, Jung discloses the photosensor may comprise at least three photosensitive elements, the electrical output signals of which can be ascertained individually and which differ in their spectral characteristics (Fig. 12, col. 24, lines 35-55).

As for **claim 28**, see **claim 1** above. In addition, Jung discloses device moveable relative to surface at an essentially constant spacing therefrom and a distance measuring means is provided which ascertains movement and memory means into which optical parameters measured along predetermined measurement points are stored (Figs. 1, 2, and 9; col. 3, lines 50-67; cols.7-12; col. 17-19).

As to **claim 31**, Jung discloses a method for measuring optical characteristics of teeth comprising: providing a first optical means which is a source fiber optic, having at least one illuminating means, the light of which is directed at a predetermined angle to the surface, providing a second optical means which is a receiver fiber optic aligned at a predetermined angle to surface and which receives the light reflected from surface, whereby said second optical means comprises at least one photosensor, which emits an electrical measurement signal;

providing a control and evaluation means provided for controlling the measurement sequence and for evaluating of the measurement results and which has at least one processor device and at least one memory means; providing an output display means; evaluating light and deriving at least one variable parameter (Figs. 1, 2, and 9; col. 3, lines 50-67; cols.7-12; cols. 17-19).

As for the light emitted from said illuminating means providing at least red, green, and blue spectral components and having wavelength range between 480 and 620 nm, Jung teaches tristimulus color measurements using white light (col. 2, lines 13-30); the invention may include broad band elements (col. 4, lines 5-11); the source is a halogen source that emits visible radiation (col. 8 lines 20-25). It is well known that white light comprises red, green, and blue spectral components and that the visible region is between 480 and 620 nm. Therefore, it would be obvious to one skilled in the art at the time the invention was made that the halogen light comprises the spectral characteristics of red, blue, and green, and the range of 480 and 620 nm for white light comprises red, blue, and green light and the wavelength regions of the visible 480 to 620 nm.

Jung discloses the illuminating means as a halogen source (col. 8, lines 20-25) and mentions the use of a red led for visual indication of a UV light (col. 14, lines 15-20). However, the primary illumination for measuring optical characteristics is the halogen source, but other light sources may be used (col. 3, lines 50-60). McNeil in a broadband optical system for the analysis of samples demonstrates that a diode and incandescent sources are functional equivalents of a halogen lamp. Therefore, because the diode and halogen lamp were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a diode for a halogen lamp.

As for the wavelength-dependent intensities, Jung is silent. However, Alsenz in a detection apparatus teaches that broadband sources have wavelength dependent intensities through Planck's equation (cols. 1-2). Therefore, it would be obvious to one skilled in the art at the time the invention was made that the broadband source had a wavelength dependent intensity, for intensity has a wavelength dependence from Planck's equation.

As for the spectral intensity being greater than one-hundredth of the maximum spectral intensity. Jung is silent. This range one percent to one hundred percent of maximum spectral intensity is an optimal range of emission. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the diode emit within one percent and one hundred percent of its maximum spectral intensity, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. In addition, it is well known in the art to pulse a diode at sufficient intensity in order to prevent burn out of the emitting diode. This implies that if a constant voltage is applied that it would be lower than the voltage for maximum intensity emission in order for the diode to not burnout. Therefore, it would be obvious to one skilled in the art at the time the invention was made to have the intensity of the diode be greater than one-hundredth of the maximum spectral intensity through pulsing in order to obtain a higher amplitude pulse than the diode could sustain at a continuous voltage input level and to increase the lifetime of the diode.

8. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in view of **Suga (4,150,898)**.

As for **claim 6**, see **claim 5** above. However, they are silent concerning the standard distribution being from a particular light type standard. Suga teaches in a colorimeter that halogen or tungsten lamps are employed for obtaining C light measurements. Therefore, it would be obvious to one skilled in the art at the time the invention was made that the diode, a functional equivalent of the halogen source, would also be a C light standard, for halogen lamps are employed for obtaining C light measurements.

9. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in view of **Keithley et al. (6,407,830)**.

As to **claim 7**, see **claim 1** above. Jung discloses the use of tristimulus systems for color determination and is silent concerning the sensitivity of the sensor in relation to the human vision. Keithley in a sensor assembly teaches that the color accuracy of the image will be only as good as the spectral band match between the spectral sensitivity of the sensor used to record the image and the spectral sensitivity of human vision. Therefore, it would be obvious to one skilled in the art at the time the invention was made to have Jung's system have the spectral measurement characteristic be the aggregate of the spectral characteristic of the light emitted onto the measurement surface and the spectral sensitivity of the sensor in proportion to an aggregate of a spectral distribution of a light type standard and the sensitivity of the human eye, for the color accuracy can only be good as the spectral band match between the spectral sensitivity of the sensor and the spectral sensitivity of the human vision.

10. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in view of **Sweatt (6,262,845).**

As to **claim 9**, see **claim 1** above. However, they are silent concerning a scatter disk and aperture arrangement. Sweatt in an illumination system discloses using a scatter plate and aperture arrangement for uniform illumination (col. 7, lines 55-67; col. 8, lines 1-10). It would be obvious to one skilled in the art at the time the invention was made to have a scatter plate and aperture arrangement in order to provide uniform illumination.

11. **Claims 10, 32, and 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in view of **Mishra et al. (5,795,798)** and **Nagasaki (4,602,281).**

As for **claim 10 and 32**, see **claim 1**. However, they are silent concerning several light sources having differing spectral characteristics. Mishra shows that three diodes, a red, a green, and a blue diode is an equivalent structure known in the art (col. 1, lines 45-64) and Nagasaki teaches that three diodes are an equivalent structure to an incandescent light source (col. 3, lines 1-10). Therefore, because these two were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a white diode or the halogen source that is an equivalent structure of an incandescent lamp for a red, green, and blue diode.

As for **claim 33**, see **claims 10 and 32**. The red, green, and blue diodes have differing spectral characteristics.

12. **Claims 18, 19, and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in view of **Reisser (5,392,125)**.

As to **claims 18 and 36**, see **claim 17**. Jung discloses that angles may differ between the different optical means (col. 34, lines 25-45). They are silent concerning the particular group of angles other than ninety, perpendicular, but Jung discloses that nonperpendicular arrangements may be utilized (col. 19, lines 10-25). However, Reisser in a system for determining visual surface properties teaches using twenty and eighty five degrees for high gloss and mattgloss measurements and a forty five and zero degree arrangement for measuring color (col. 4, lines 15-25; col. 4, lines 45-55). It would be obvious to one skilled in the art at the time the invention was made use a twenty and eighty five degree arrangement for gloss measurements and a forty five and zero degree arrangement for measuring color.

As to **claim 19**, see **claim 18**. However, Jung is silent concerning a secondary optical system for the Fig. 1 embodiment, but Jung discloses a second optical system, secondary triad sensors in order to keep the probe stationary in respect to the measured surface (Fig. 20). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have a secondary optical system in order to have the probe stationary to the measurement surface.

13. **Claims 20, 21, 23, and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in view of **Reisser (5,392,125)** and further in view of **Lex (5,923,434)**.

As for **claim 20**, see **claim 19**. As for a third optical system, Jung discloses a third optical system, an intra-oral camera system for imaging (Fig. 24). It would be obvious to one skilled in the art at the time the invention was made to have a third optical system, an intra-oral camera, in order to make a complete profile of the measurement surface. However, they are silent concerning the emission versus reflection angles of the particular optical means. Lex in a surface quality measuring device teaches that the Fresnel reflection law is valid for gloss behavior (col. 1, lines 25-35). Therefore, it would be obvious to one skilled in the art at the time the invention was made that the angles for gloss measurements will be different than the angles for imaging measurements by the intra-oral camera system, for gloss measurements follow a valid Fresnel reflection law.

As for **claim 21**, see **claim 20** above. Jung discloses the light source, third optical means, of the intra-oral camera may be the same as of the reflectometer (Fig. 34). Therefore, the light sources for both systems are functionally equivalent. Because the light source of the reflectometer system and the intra-oral camera system were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute a diode of the reflectometer system for the light source of the intra-oral camera.

As to **claims 23 and 24**, see **claim 20**. In addition, Jung discloses the fiber optic source may emit light that is of differing vergences depending on choice of numerical aperture of fiber optic (col. 40, lines 20-40).

14. **Claims 25-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in

view of **Reisser (5,392,125)** and further in view of **Lex (5,923,434)** and further in view of **Klenk et al. (4,918,321)**.

As to **claim 25**, see **claim 23**. However, they are silent concerning emitting a strip of light perpendicular to the direction of propagation. Klenk in a reflected light scanning method teaches using strips of light to illuminate surface in order to better profile matt surfaces (col. 1, lines 1-15 and lines 53-68). Therefore, it would be obvious to one skilled in the art at the time the invention was made to emit strips of light in order to better profile matt surfaces.

As to **claim 26**, see **claim 25** above. In addition, temperature measuring means for determining characteristic temperature of sensor for temperature compensation of measurements (col. 9, lines 23-40). As for the sensor's placement, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the temperature measuring means arranged near the sensor since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70

As to **claim 27**, see **claim 26** above. In addition, a portion of the progression of the image of at least one light/dark edge is defined on photosensors and a characteristic surface parameter is determined from deviation of the measured path from the ideal path (col. 35, lines 40-67; col. 19, lines 1-25).

15. **Claims 29-30** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in view of **Lex (5,596,412)**.

As to **claims 29 and 30**, see **claim 28**. However, they do not teach a measurement wheel positioned on surface and rotates relative to movement of device and measurement surface and

coupled to a rotating angle output device. Lex in a device for physiological assessment of reflective surfaces teaches using a measurement wheel coupled to a rotating angle output device in order to determine the exact geometric relationship of the measuring points on the surface (col. 2, lines 55-64; col. 6, lines 55-67; col. 7, lines 1-30). Therefore, it would be obvious to one skilled in the art to have the invention include a measurement wheel coupled to a rotating angle output device in order to determine the exact geometric relationship of the measuring points and to determine directly the relative movement between the measuring device and the measurement surface.

16. **Claim 38** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Jung et al. (5,880,826)** in view of **McNeil (5,867,276)** and in view of **Alsenz (4,578,959)** and further in view of the applicant's disclosure of prior art.

As for **claim 38**, see **claim 22**. As for the measuring cycle, Jung is silent concerning the measurement cycle being less than .2 seconds. However, the applicant's disclosure teaches prior art of taking a measurement cycle takes less than .2 seconds (page 5, line 27). Therefore, it would be obvious to one skilled in the art to have the measurement cycle be less than .2 seconds, for measurement cycles with light emitting diodes are typically less than .2 seconds.

Response to Arguments

17. Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,000,569 to Nylund

U.S. Patent 6,542,248 to Schwarz

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is:

(703) 308-7722

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (703) 305-4787. The examiner can normally be reached on Monday-Friday, 10:00 a.m. – 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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June 27, 2003

Zandra V. Smith
Primary Examiner
Art Unit 2877